



THE STATE OF UTAH
OFFICE OF STATE ENGINEER
SALT LAKE CITY

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REL: SEVIER RIVER DISTRIBUTION

Memorandum for Office Study only, By B. F. LOFGREN

In the last paragraph of his letter of March 27, 1940, Water Commissioner, J. Lerue Ogden inquires regarding the practice of allowing the Bench Irrigation Company diverting from Coyote creek, to divert the entire flow of Coyote creek when the water passing their diversion dam sinks into the channel bed and does not reach the main channel of the east fork of Sevier river.

On June 17, 1940, I made a field examination of $4\frac{1}{2}$ miles of the channel of Coyote creek from the diversion dam of the Bench Irrigation Company, down to the main channel of the east fork of Sevier river, and of the lands which are being irrigated under that company's canal with the object of determining what the effect may be on the flow of Sevier river by diverting the entire flow from the creek at such time that the water did not reach the main fork. Coyote creek has a comparatively wide channel below the diversion dam of the Bench Irrigation Company canal; a flow of one second foot spreading over the channel bottom to an average width of from 15 to 20 feet.

For the first $3\frac{1}{2}$ miles below the diversion dam, the channel runs down the bottom of a wide, flat-bottomed canyon, which apparently has been filled to considerable depth with boulders and gravel; the walls of the canyon being of conglomerate beds. At the mouth of this canyon as the creek enters the main east fork of the canyon, there is an alluvial cone with its apex at the mouth of Coyote creek and extending toward the main channel of the east fork of Sevier river. From examination of the vegetation on this cone and the seepage inflow into the east fork at the toe of the cone, it appears that any water flowing from Coyote creek onto this cone will be transported underground into the east fork without much loss. Water which flows down the channel of Coyote creek above the mouth of the canyon which is cut through the conglomerate beds, is subject to excessive loss by evaporation, and water which sinks into the channel bed may not be confined to the canyon, since the conglomerate ledges appear to be permeable. Water lost in that upper section, therefore, is no more likely to reach the east fork of Sevier river than if the same water were applied to the irrigated areas adjacent to the creek and lying in part above the conglomerate beds.

It is recommended, therefore, that the Commissioner be instructed that so long as there is a surface flow in Coyote creek passing the bridge on the main highway between Antimony and Widtsoe, only the decreed rights be diverted at the dam of the Bench Irrigation Company; but when the flow in Coyote creek below that ^{dam} does not reach the main highway, that the irrigators diverting directly from Coyote creek be permitted to use the entire flow.

L/nty

B.F.L.